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IV.—*Contributions to the Natural History of the Iranians.*

By M. KANIKOFF.

[Read January 10th, 1865.]

WHATEVER may be the convictions of natural philosophers on the fixity of species in the vegetable or animal reigns, the absolute application of this principle to man seems to me quite impossible. Man is endowed with a privilege of keeping up the traditions of his past, and whenever the ethnologist has seriously inquired into the history of races, he has been forcibly brought to admit the existence of a savage or natural or primitive race, which, by gradual transformations, and under the influence of various agencies, has taken at last the form peculiar to the majority of individuals of this race, considered at any given moment.

In new societies, formed, if I may say so, under the eyes of attentive observers, the inquiry into their origin offers little or no difficulty. Thus, nobody would be embarrassed to discover the primitive type of Turks, founders of the empire of the Sultans, in the populations of the same family wandering on the eastern shores of the Caspian Sea. Under the Seldjukians, they invaded the western provinces of ancient Persia, and then, by degrees, made their progress to the west, through Asia Minor. But for a people, like the Persians, whose antiquity is coeval with the earliest recollections of mankind, and whose country was so frequently and so radically overthrown by mighty social commotions, the task of finding out the place where we can hope to meet their primitive type, is much more difficult, and would appear, at first sight, quite impossible.

For in a very large class of natural phenomena, the exact point of their origin is indicated only by directions which converge from different sides, and we can never hope to discover the true position of their common intersection. The inquiry into the place of the cradle of a nation, and especially that of the origin of the peoples of the Iranian family, presents the same peculiarities.

It is generally known that the highest point of the old world, the plateau of Thibet and the chain of Himalaya, divides four different nationalities: the Chinese to the east, the Turanians to the north, the Hindus to the south, and the Iranians or Persians to the west. Philological and historical researches have established also the community of origin of the Hindus and of the Iranians, who, at a very remote period, dwelt together on the plateaus of High Asia, under the common name of Arians. I will not recur to the proofs of these facts, and I take them as a founda-

tion of my ulterior researches, strictly confined to the ethnography of the Iranian family of the Arian race, and I begin with the question, Where should be placed the cradle of this family? For the solution of this problem, we must necessarily inquire into the most ancient traditions of the peoples of this family, and examine the ethnographical value of their indications. We must also begin with the analysis of the Vendidad and of the poem of Firdoosi. These two documents, the only ones that give us any information on the pre-historical past of the Iranians, need only be mentioned by name to show the weakness of the assistance ethnologists can hope to find in them.

The Vendidad has preserved for us the echoes of a very remote period, at which, we cannot say positively, if the Iranian family was constituted as such, or if it was agglomerated with all the heterogeneous elements of the Arian race, which have since formed very nearly all the primitive populations of Europe. Firdoosi, on the contrary, has also preserved for us abridgments of very ancient traditions, but they were collected at a period when the Iranian nationality underwent many radical transformations, which permit us to suspect the purity and integrity of these recollections.

Therefore, it would be very rash to seek in these two sources for anything more than a faint indication of the locality of the first formation of the Iranians, but this, I believe, can be elucidated by those documents. An indication obtained this way would have a character of indubitable reality, as resulting from two documents of which the one is, very probably, anterior to the formation of the nation, and the other long posterior to it.

The first "faraghard" of the Vendidad, pompously designated during a long time as "The first page of the history of Indo-German nations," as "The first itinerary of their migrations," was very justly reduced by the sound criticisms of Messrs. Kiepert, Spiegel, and Breal, to more modest proportions. It is a religious book of very respectable antiquity, which has nothing in common with an historical narration; but as it contains geographical names, these names will show us the portions of the Asiatic continent known to the authors of the book. Mr. Breal considers all the localities mentioned by the Vendidad as totally fabulous, but this seems to me impossible, as a great many of these names are very easily explained and identified with existing countries and mountains. I will not speak here of all the numerous translations and comments of this "faraghard", but I will only mention the last results on this matter obtained and expounded by Mr. Spiegel, in his communication made to the Academy of Munich, on the 5th of March, 1859 (*Das erste Capitel des Vendidad*), and by Mr. Haug, in his book *Zend-*

*studien.* We may adopt the identifications proposed by either of these two *savants*, but the result which interests the ethnographical question is the same; that is, the majority of the names of localities, mentioned in this chapter of the *Vendidad*, belongs to places situated in Eastern Persia. This fact is very natural, as the religion of Zoroaster was probably acknowledged as an official creed in the ancient Bactriana; but it proves (1), That, at this remote epoch, the East Iranians were more advanced in civilisation than their compatriots of the West; and (2), That they formed larger centres of population.

The *Chahnameh* (*Shahnameh*), an imperishable monument of the Persian genius, is at the same time a sort of complement to the *Zendavesta*, as many legends reported in the poem *in extenso*, are only indicated by allusions in the sacred book. Such is, for instance, the tradition of *Djemshid* (see Roth, *Die Sage von Dschemschid, Zeit. d. D. Morg. Ges.*, t. iv, 1850, p. 417-433). Being far from ascribing to this collection of reminiscences of the first centuries of the existence of Iranians an historical value, I think it necessary to show the great difference existing between the traditions known to the *Zendavesta* and those consigned in *Firdoosi's* poem. Mr. Spiegel already very justly observed, that the principal personage of the poem, *Roostam*, seems to be perfectly unknown to the author of the religious book. His name, so often repeated in *Firdoosi's* verses, is not mentioned at all in the book of Zoroaster, who, however, speaks of *Sam* and *Zal*. But if we consider that the poem is closed by the apparition of the prophet, at the moment where ceases the intervention of genii in human affairs, are we not entitled to admit, that the poet, wishing to end his epopee, with so important an occurrence as the establishment of a national creed, has placed it after the heroic period of his people's past, and that, in reality, this first effort of the Persian genius, must be placed between the mythological and the heroic periods of the Iranian past. But be that as it may, the essential point, for me, is to show that the traditions of these two periods refer, nearly exclusively, to the east of Persia. The west of the empire plays a very secondary part in the poem, and the antagonism of the Iranians with the Semites is much less insisted upon, than their struggles with the peoples of the north, and particularly with *Afrassiab*, the true representative of the Turanians. We do not mean by this that the occident of Iran has no traditions at all; *Feridoon*, the mythological prototype of *Cyrus*, performs his exploits in the vicinity of the Mount *Demavend*, and still in the time of *Herodotus* three distinct versions of the life of *Cyrus* were generally known (see *Her.*, l. i, 95); but I repeat that the greatest part of the facts consigned in the poem refer to the eastern provinces of Persia.

We see, also, that the geographical indications of the most ancient recollections of the Iranians relating to their past, seem to oblige us to place in the east of Persia the cradle of the nation, but they give us no probable evidences as to the exact spot of the vast territory which they point out. To limit as much as possible this space, we must apply to other sources of information, especially to the notions preserved by the inhabitants of the north-eastern, eastern, and south-eastern frontier of the abode of the Iranians, concerning the directions they travelled in, to reach their present settlement.

Merw and Balkh, two very ancient cities of the northern frontier of Khorassan, were, according to a tradition mentioned by Istakhry, founded by Tahmooraz, therefore by populations coming from the south and the west. Beikend, the first inhabited spot of Sogdiana, according to Narshakhi, was built by men coming from the west, who founded, afterwards, Bokhara and other cities, in the direction from west to east. The tribe of Djemshidies, as I have mentioned in my memoir on Khorassan, preserves a faint recollection of their Seistanian origin. Lassen has proved to conviction that, so far as the time of the Gaznevides, the Indian population was very near the eastern frontier of Seistan. The Kafir Seapoosh, who were presumed to be of Iranian origin, are, according to the recent researches of the missionary Trump (*Journal of the Royal Asiatic Society*, t. xix, p. 3), undoubtedly of Hindu origin. Far to the north-east there is a people, which is doubtless of Persian lineage, the Wakhanis. Ahmed Shah Nakshbendi (see *Journal of the Royal Asiatic Society*, t. xix, p. 332) has found them in the village of Kholastan, at three days' march from Yarkand. Lieutenant Wood, who is the only European, after Marco Polo, who visited this people in their abode, considers them as Persians, but says nothing of their origin; and, as the Wakhanis played so insignificant a part in the existence of the Iranian nation, I cannot consider them as the forefathers of this large family of the Arian race. Nor must we attempt to place the ancestors of the Iranians to the south of Seistan. The Gedrosia of the ancients, the Belootshistan of our days, by the inhospitable character of its soil, was, at all times a neutral ground, quite fit, by the isolation of its habitable spots, divided by vast deserts, to shelter outcasts of different nations, especially, as I can prove, fugitives from Arabia and from Turkistan.

Though we have excluded the west of Persia from the lands where we can place the origin of the Iranians, still, as the most ancient European notions of this people relate to these countries, we will say a few words with regard to this supposition. It is true that Herodotus, Xenophon, and other ancient writers, speak almost exclusively of western Persians, and seem to believe that

their original home was somewhere in modern Farsistan ; but, fortunately, they are not the only western witnesses of the past life of this people. The inscriptions on the obelisk of Nimrood, so ably translated and investigated by Sir Henry Rawlinson, give us a picture of the distribution of Iranian tribes on the continent of Asia far more ancient than the list of these tribes preserved by the great historian of Halicarnassus. We see by this document that Temenbar II passes the Zaab, enters into Kharkor,—identified by Sir Henry Rawlinson with Armenia,—goes through the abode of the Arians, and then enters the land of the Persians, whose twenty-seven kings pay him tribute. And I believe with the learned interpreter of this inscription that it proves that, at the epoch of the above-mentioned Assyrian king, the Iranians had not reached, as yet, Persia proper (*Journal of the Royal Asiatic Society*, t. xix, p. 442). In fact, the extensive and dry plains of western Persia are not suitable for the formation of a distinct family of a race. The woody and narrow valleys of the northern slopes of the Demavend and the southern shores of the Caspian would better answer this purpose ; but the distance of these countries from India, and the peculiarities of their soil, so different from that of the majority of lands occupied by the Iranians, make this hypothesis very improbable. Far to the north-west of the last-mentioned provinces, we find another people, the Ossethians, who call themselves *Tron*, and who are doubtless of Iranian origin, as the philological researches of Mr. Sgögren have determined. They came to their present abode before the formation of the myth of Prometheus, known to them to these days under the name of Cæraman ; but this alone gives us no right to place the cradle of the Iranian nation in the eternal snows of the Caucasus ; it proves only that the first migrations of different members of this family began at a very remote period.

Thus, the whole of our notions on the present and the past distribution of Iranians in Central Asia, give us some right to believe that they were scattered to the north, west, south, and east of the fertile valleys situated between the Hindoo Koush, the chains of Poughman and of Koochi Baba, and of the well-watered plains of Herat, Seistan, and Kirman. I consider, therefore, the Persian inhabitants of the above-mentioned territory as the true aborigines, and it is among them, I believe, we may hope to find representatives of the primitive type of this family.

Probable as this result may appear, obtained only by historical investigations, it cannot be considered as certain before it is submitted to the trial of an application to facts now existing. Therefore, we must begin by solving three questions :—1. If the populations of the east of Tron offer us a type distinct from that of other parts of Persia. 2. If this special branch of the eastern

population which reproduces the above-mentioned distinct type has any claims to antiquity. And 3. If we have any right to consider this distinct form as the primitive and fundamental type of the Iranians.

The notion that the Oriental Persians have a distinct form and represent better the ancient type of the nation is not very ancient. The Greeks, before Alexander, came very seldom in contact with the eastern populations of the empire of Cyrus. Amongst the troops of Xerxes, doubtless the Arians, the Marghians, the Bactrians, and the Drangians have had many representatives, but their relations with Europeans were unfavourable to ethnographical studies. The historians of Alexander the Great give us generally very few particulars on the nations subdued by the illustrious Macedonian conqueror. The most ancient mention of this difference seems to me to have been made only in the seventeenth century, by Don Garcia Silva Figueroa, a Castilian nobleman, sent by the King of Spain as envoy to the court of Shah Abbas I, in the year 1614, who returned home in 1624. He says (page 178 of the French translation of his travels by Wicqfort), "In the eastern provinces of Persia and in the province of Kirman, which is on the eastern frontier of the empire, we find many of these ancient and true Persians, who, notwithstanding that they were mixed with others, and, notwithstanding that, being united to their conquerors, they formed one people, kept up their primitive manners, their dresses, and their religion." Pietro Della Valle, who was in Persia at the same epoch, says only (pp. 105-6 of the French translation), "That the Gabirs are nearly like the Persians of to-day, but their shape is thicker." An English traveller, a Fellow of the Royal Society, John Fryer, who was in Persia at the same time as Chardin, between the years 1672 and 1681, is still more explicit. He says (pp. 265-266), "The *Gabrs* or *Gours* are the true *Persian* race. . . . These seem to me the most lively representation of the figures both on the rocks and on the palace itself at *Persepolis*." His contemporary Labrosse, better known under the name of Pater Angelus, in his *Gazophilacium linguæ Persarum*, published at Amsterdam in 1684, insists still more strongly on the difference between the Guebers and the western Persians. He says, "The Persian nation has no other good qualities than a good port and bodily beauty. . . . But you can see their ancient form in the persons of Jaures, fire-worshippers, who are ugly as monkeys." Mr. Ouseley (t. iii, p. 355, note 13) has very justly shown the exaggeration of this observation; but, nevertheless, it is a fact, that all the travellers of the seventeenth century were struck by the difference between the western Persians and the Guebers. At last, Chardin, in a passage very often quoted by Buffon, Gibbon, Prichard, and others, in chap. xi, t. 2, observes

that, "The blood of Persians is naturally coarse, which is seen in the Guebers, who are the remains of ancient Persians: they are ugly, badly shaped, heavy, and have a rough skin and a coloured complexion. We can see it also in the provinces which are near to India, where the inhabitants are likewise badly shaped like Guebers." Then, having said some words on the mixture of Persians with Georgians and Circassians, he observes, "Without this mixture, the men of quality in Persia would be the ugliest beings in the world, because they descend from the lands laying between the Caspian Sea and China inhabited by the ugliest men of Asia."

Dr. Prichard, in his justly celebrated work, *The Natural History of Man* (p. 171), strongly attacked this opinion of Chardin; he says, "Sir John Chardin, the most celebrated of all travellers in Persia, conceived the notion that the old Persian race was an ugly and ill-favoured one, similar to the Mongols, and that the personal beauty for which the modern Persians are noted is inherited from Circassian and Georgian concubines. This opinion he probably formed from some of the Kigat, whom he mistook for Persians." Then, having quoted the original words of Chardin and the opinion of Ammianus, he continues, "A perfect confirmation of this account (of Ammianus), which leaves no further evidence to be desired, is afforded by the numerous sculptures on Persian monuments at Istakhr and Hamadan, or Persepolis and Ecbatana, and other places. The outline of the countenance is here not strictly Grecian, for it is peculiar, but it is noble and dignified; and if the expression is not full of life and genius, it is intellectual and indicative of reflection. The shape of the head is entirely Indo-European, and has nothing that recalls the Tartar or Mongolian."

To this I must observe:—1. That Chardin has never said that ancient or modern Persians were similar to Mongolians; he speaks only of "*gens de qualité*," courtiers of Shah Abbas, who were nearly all of Turkish extraction. 2. That in Hamadan or Ecbatana is not to be found a single sculpture of man or woman. And 3. That the sculptures of the ancient Persian monuments present to us indeed a very valuable source of ethnographical information, as we will show; but they must not be taken *en masse*, because, in these hundreds and hundreds of figures sculptured at Persepolis, we cannot say if the artists have reproduced types of western or eastern Persians. In the few instances where we can decide upon the nationality of the sculptured figures, the observation of the travellers of the seventeenth century is not only *not* contradicted by these sculptures, but it is strongly confirmed by them.

In the great many sculptured rocks and monuments discovered by travellers in Persia, only three *bas-reliefs*, as it seems to me, have an ethnographical value. The first is the celebrated rock of



Bisitoun, where Darius is represented receiving the vanquished rebels. The second is the monument of Darabguird, representing the triumph of Sapor over Valerian in A.D. 260. The third, and last, is that of Shapour, in which Mr. Ouseley has justly recognised, as it seems to me, the reception by Sapor of the ambassadors of Odenath, husband of Zenobia, Queen of Palmyra. Indeed, it is only the first of these *bas-reliefs* which has a direct application to the Iranian ethnography, and it will also be the only one I shall examine in detail.

Every one knows that on this monument Darius is represented, attended by two servants, placed behind him; he puts his foot on the neck of the Mage Gaumata prostrated before him, and addresses reproaches to nine captured rebels approaching him in front with their bodies bent and their hands bound behind them. Of these nine figures, the nearest to Darius is that of *Atrina*, King of Susiana; then comes *Naditabira*, King of Babylon; *Travarti*, King of Media; *Martia*, another King of Susiana; *Citrakhama*, King of Sagartia; *Pahyazdata*, pseudo-Bardia, son of Cyrus; *Arakha*, King of Babylon; *Frada*, King of Marghiana; and at last *Cakouka*, the Saeian. These figures are the more interesting, that the legends engraved upon every one of them, and determining exactly the personality of each, are in a very good state of preservation, and were deciphered without any difficulty. I reproduce here only the rough sketches of their heads. No. 1 is the head of one of the followers of Darius; No. 2 is Darius himself; then come the captive kings in the above-named order; No. 11 is the Saeian; and No. 12 is Gaumata.\*

We have, also, in this truly ethnographical gallery, six heads of Persians, the Nos. 1, 2, 5, 7, 10, and 12. One is a Median, No. 5; one a Sagartian, No. 7; No. 10 is an inhabitant of Marghiana. Media is placed by Herodotus in the tenth nome, and belongs evidently to western Persia: as to Sagartia, so far as I know, being without a correspondent in the modern names of Persian provinces, it must be classed, I believe, in eastern Persia, because Herodotus informs us, that the Sagartians paid their tribute in the fourteenth nome, along with the Zarangians and the Thamanians, inhabitants of Seistan and eastern Khorassan. Marghiana is identified by all the commentators of Herodotus with the modern province of Merw, and belongs also to eastern Persia. Thus, the Nos. 1, 2, and 12 represent the inhabitants of modern Farsistan; No. 5, a man of Aderbeisjan; No. 7, a Khorassanian of the south; and No. 8, a Khorassanian of the north-east. In examining these figures, we see that the oval of the head, so perfect in Darius and in his two clansmen, sufficiently evident still in the Mage of Median descent, loses this form as soon as we go

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\* The reference is to the drawings exhibited at the meeting.

to the east, the top of the skull becoming flat, and the base of the nose wider. The eye preserves its dimension, but has not the beautiful cut it has in the western Persians; in short, we see in the figures of this *bas-relief* the same variation of features and of conformation of the head that we observe to-day in comparing the type of a Heratian or of a Persian Gueber with that of a Persian of Shiraz or Ispahan. If it were possible to decide upon an isolated fact, I should be tempted to believe, that at the epoch of Darius, these worse features of the primitive Persians extended more to the west than in our days. No. 9 represents the Armenian Arakha, who seized upon Babylon, and he has a head flattened at the top, a form which has completely disappeared in the Armenians of the present day, probably through their crossing with Semites, Turks, and western Persians. Considering that Martia, No. 6, and Wahyzdata, No. 8, are very similar in features to eastern Iranians, though they are designated in the great inscription of Bisitoun as Persians, I am inclined to admit, that at the time of Darius, even among the Western Persians, many individuals reproduced the primitive type of their race, considerably changed only among the Achemenians.

We can show that nearly the same difference in the conformation of the head exists at the present day. A modern traveller in Persia attached to the military mission of Colonel Brogniart, M. Duhouset, guided by M. Quatrefages's instructions, has measured the different diameters of the heads of Persians, the length of their horizontal sections, and the length of half the arch which goes from one ear to the other. The length diameter was taken by measuring the distance between the *glabella* and the most prominent part of the occipital. The breadth diameter is the distance between the temporal bones, and the vertical or height diameter is the vertical distance between the aperture of the ear and the horizontal line, tangent to the top of the head. All these measurements are expressed in millimeters, and are the means of eight measurements for Hindus, seven for Afghans, three for Guebers, five for Persians of Ghilan and Mazanderan, five for Kurds, and four for Bakhtiaries.

Nations.	I. Length diam.	II. Breadth diam.	III. Vertical diam.	Greatest hori- zont. circumf. of the head.	½ arch going from one ear to the other.	Relation to		
						I. : II.	I. : III.	II. : III.
Guebers.....	198	139	104	555	296	1.42	1.90	1.34
Hindus .....	196	146	100	565	291	1.34	1.96	1.46
Afghans .....	189	144	103	559	258	1.31	1.73	1.40
Ghilanians .....	183	154	106	558	319	1.19	1.73	1.45
Kurds .....	182	157	101	560	311	1.16	1.80	1.45
Bakhtiaries .....	181	164	107	571	327	1.10	1.69	1.53

These numbers have an ethnographical value easy to be interpreted. They establish evidently a considerable difference in the conformation of the head in western and eastern Iranians. The Kurds and the Bakhtiaries are the opposite of Hindus and Guebers for all the diameters of the head. The value of this variation is not at all proportional to the numerical largeness of these diameters. In all the Iranians, the greatest diameter is I, the mean is II, and the least is III, but the variations are *maxima* in the breadth, diameter twenty-five millimeters, mean in the length one, seventeen millimeters, and *minima* in the vertical diameter, three millimeters. Thus it seems that in the Iranians the influence of crossing on the form of the head is particularly expressed by the elongation of the breadth diameter of the head. This result would be interesting indeed if it could be relied upon, but as it is based on very few facts I do not attach much importance to it, and I mention it only for the sake of further researches which may confirm or refute it. The numbers collected in the above-mentioned table are quite conformable to history. Indeed, if we take off consecutively the numerical value of all diameters (I) from that of the Guebers, we find a difference of two millimeters for Hindus, twelve for Afghans, fifteen for the inhabitants of the south coast of the Caspian, sixteen for Kurds, and seventeen for Bakhtiaries. This sudden passage from two millimeters to twelve implies evidently some exterior influence which I can only account for by the crossing. The aborigines of Afghanistan are doubtless of Iranian extraction; at every period of their past they were submitted much more to Persian and Hindu influence than to any other, but the earliest records show also their contact with Sacians. After the introduction of Islamism in Afghanistan and among the Turanians, their neighbours, these mixtures became more frequent, and we know positively that the Ghildjeis, now one of the largest tribes among Afghans, are of a Turkish origin. The inhabitants of Mazanderan and of Ghilan, the first by their vicinity to Toorkmans and Kharezmians, and the last by the establishment in Talysh, at the epoch of the first Seldjukians of a large Turkish tribe, the Kiptchaks, must necessarily preserve marks of their crossing with Turanians. As for the Kurds and the Bakhtiaries, their constant crossing with the Semites of Mesopotamia and with Turkish tribes of Aderbisdjan and Asia Minor, is too evident to be much insisted upon. The heads of the Hindus and of the Guebers differ very little in their length diameter, and I can attribute it only to the loneliness of these populations resulting from the exclusiveness of their faith. If we admit even that at the epoch where the fire-worship was much more generally spread than at present and when it was the dominant religion of the great Sassanian empire, the crossing of the Iranians with other

racés could have changed the primitive form of their heads, the Guebers of our time could return to it by the action of *atavism* very obvious among Iranians.

I must confess that I consider the measurements taken on the heads and on the bodies of living individuals as the only possible way to establish ethnography on a truly solid and scientific base. The prejudice, common to all religions, consisting in the belief that it is impossible to show more regard to the dead than by securing their mortal remains from the view of living men, seems not likely to be abandoned, and our collections of skulls and of skeletons will never, I fear, be sufficiently large to permit us to take on these bones only as many measurements as are necessary for the elimination of all accidental differences of the human crania and other bones of different races. The best proof of this is, that in the largest known collection of skulls, that of Netley, there are only eighty-seven crania of natives of Great Britain (see Dr. Williamson's *Observations on Human Crania contained in the Museum of Chatham*, 1857, p. 11). But, nevertheless, the usefulness of collections of skulls for the ethnographer, cannot be doubted. The skull will remain for ever the normal standard of the ethnologist; and I cannot venture to give any definitive opinion on the form of an Iranian head without having exposed the measurements I have performed on the crania of representatives of this family of Arian race preserved in the principal craniological museums of Europe—at Petersburg, Göttingen (Blumenbach collection), Paris (Jardin des Plantes), London, in the College of Surgeons and the British Museum, and at Netley. I seize this opportunity to express my warmest thanks to the eminent men who kindly aided me in these researches. They are Professor Baer and Dr. Owsiani, Professors at St. Petersburg; Dr. Keferstein, at Göttingen; M. Quatrefages and Dr. Emmanuel Rousseau, at Paris; Dr. Gray and Mr. Cox, at the British Museum; Dr. Flower, at the College of Surgeons; and Colonel Wilbraham, C.B., Professor William Aitkin, and Dr. Otto Stridinger, at the Royal Victoria Hospital at Netley.

The human skull has been studied in these last years by so many eminent naturalists and for so many different purposes, that it has resulted in a great diversity of methods for measuring the cranium. But in an ethnographical aim, where we must take of these measurements on the skull only those which can give us a good idea of its exterior form, it seems to me that the method recommended by Mr. Quatrefages to Mr. Duhoussen, completed by the measurements indicated as important by Mr. Baer, at the last meeting of German craniologists of Göttingen, will sufficiently answer to this purpose. These measurements are—I. The length of the skull or the antero-posterior diameter. II. The breadth or

the greatest right distance between the temporal bones. III. The height or the right distance between the centre of the *foramen magnum* and the highest point of the cranium. IV. Horizontal periphery. V. Mean longitudinal arch, measured from the *sutura nasalis* to the exterior edge of the *foramen magnum* or occipito-frontal arch. VI. The vertical arch, measured from one auditory conduct to the other, passing by the middle of the parietals. VII. The shortest distance between the *lineæ semicirculares*. And VIII. the length in arch of the frontal bone.

I do not mean by this that I consider other measurements such as that of internal capacity, of the weight of the skull, etc., as not important; but I have always in sight measurements performed on living heads and those which we can reasonably expect from a traveller. All my measurements are expressed in millimeters.

Guebers.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
1. Brt. by myself from Yezd, Petersb.	189	129	144	524	322	365	104	137
2. " " "	177	135·5	147	514	375	345	101	132
3. " " "	193	129	140	530	388	345	96·5	137
4. " from Kirman "	184	129	145·5	520	378	350	97·5	116
5. " " "	185	126	139	514	377	342	100	115
Means .....	185·6	129·7	163·1	520·4	380	349·4	99·8	127·4

These measurements were kindly taken, at my request, by Professor Baer, of St. Petersburg: the eminent physiologist, sending them to me in his letter of the 13th of October, 1863, writes—"I have taken the distance (II) a little above the auditory conduct. It is not always the greatest distance, and in the skull of Kirman, No. 4, it is sensibly greater backward of this conduct, it would be there at least a hundred and thirty-three millimeters." I quote this passage of Mr. Baer's letter, as in all measurements taken by myself the distance (II) corresponds to the greatest one between the temporal bones. Further, Mr. Baer observes—"I set a little apart the skulls of Kirman from those of Yezd, because, though very similar between themselves, they differ from those of Yezd by a considerably depressed forehead, the result of which is a lesser breadth of the frontal bone. The conformation of the forehead in the skulls of Yezd is more perfect; that is, the frontal angle rises sensibly more than in the crania of Kirman; nevertheless, these last stand below the European crania of our days. The face is also more prominent in the skulls of Kirman, so that they could be called prognathous. Among the skulls of Yezd, the Nos. 1 and 3 have a great likeness to each other; but the No. 2 is sensibly larger, higher, and shorter."

Hindus.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
5541. of Mus. Coll. of Surg., London	170	129	139	474	352	313	100	120
5542. Thug " "	165	127	140	466	344	300	100	120
5543. Hindu of Oriental India " "	180	147	144	521	382	343	99	137
5544. Young woman " "	163	140	136	479	345	220	108	118
223. R. Vict. Hosp. collection, Netley	180	125	139	490	361	289	103	123
Without No., Chilluwalli " "	187	145	140	534	393	352	103	135
234. Hindu of Oriental India " "	167	125	145	470	322	340	103	120
249. Pariah " "	179	132	143	500	362	310	109	127
Means .....	173.9	139.8	140.7	491.7	357.9	339.2	103.7	125

Dr. Williamson thus describes the skulls of Hindus (p. 16):—"The cranium is of an oval form, rather narrow compared with the longitudinal diameter, which is frequently very great; the forehead is small and not much expanded; the posterior of the skull is large and the occiput prominent; the space for the downward development of the brain is of moderate extent; the ridge for the attachment of the temporal muscles is not, in general, strongly marked; the supraciliary ridge is generally marked, but not prominent; the bones of the face are rather small; the nasal bones are arched, but not so highly as in Europeans; . . . the anterior nasal aperture is generally of the European form."

Afghans.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
5540 of Mu. Coll. of Surg., London	165	134	143	483	337	316	108	120
223. Ghildjei, R.V. Hosp. col., Netley	177	137	142	500	370	308	110	127
224. " " "	175	135	137	549	351	308	118	120
225. " " "	178	138	140	555	335	320	110	129
235. Moolah " " "	165	140	129	480	339	316	100	122
229. " " "	182	140	145	510	370	329	122	122
Means .....	173.7	137.3	139.3	512.8	358.7	316.2	111.3	123.3

Dr. Williamson thus describes the Afghan skulls (p. 15):—"They are generally of an oval and round figure; the forehead and vertex are high and well arched; the occiput is well rounded, and the space for the downward development of the brain is not considerable, the supraciliary ridge is well marked, and in many of them is prominent; the ridge for the attachment of the temporal muscle is situated high on the head in some of them, but not more than in Europeans; the nasal bones are high and well arched; . . . the anterior nasal aperture is of the European form." The greatest internal capacity in the Afghans Dr. Williamson has found (p. 76) to be 89 millimeters, 3 cubic inches; the capacity

of the anterior chamber being 40 millimeters = 7 cubic inches; and that of the posterior chamber 48 millimeters = 4 cubic inches.

The other members of the Iranian family are very incompletely represented in the craniological collections of Europe. I have found at Netley a very interesting cranium of a Beloochy, No. 218, the only one in Europe, but, unhappily, in a very deteriorated state, the base of the skull is broken and the right temporal bone damaged. The measurements taken on it are—I. 184 millimeters; II. 130; III. 132; IV. 510; V. 368½; VI. 160; VII. 112; VIII. 124. In the Blumenbach collection at Göttingen, I have found only one skull of an Armenian, inscribed under the name of Capistranius Bogdanowitz, dead in 1785, at the age of 67 years. The measurements taken on it have given—I. 176 millimeters; II. 127; III. 138; IV. 507; V. 350; VI. 297; VII. 100; and VIII. 118. Crania of Ossethians I could never find; but I have had occasion to take measurements on the heads of living individuals of this nation. I give them here; observing, however, that the height is measured from the aperture of the ear.

Ossethians.	I.	II.	III.	IV.	V.	VI.	VII.
Bek Moorza, æt. 24 .....	188	154	146	576	390	379	129.5
Mootao " 39; size 1624 mme.	178	162	141	560	327.5	371	125
Khansief " 35 " 1556 "	201	155	135	588	354.0	374	121
Begee " 24 " " "	185	159	154	570	362	394	129
Means .....	188	157.5	144	573.5	358.4	379.5	126.1

Generally the Ossethians have long heads with a large and flat top; the forehead is high and the occipital large and flat; so that the profile of their heads is a long parallelogram.

In the museum of the College of Surgeons, I have found two crania, Nos. 5559 and 5560, the first of a Mussulman of Behar, the second of a Mussulman of Delhi; and as it is possible that these two individuals are descendants of Mongolians, arrived in India with the Timurides, I will give here the dimensions of their skulls as a probable specimen of transformations of a Turanian skull, under the influence of prolonged mixtures with individuals of Iranian blood.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
No. 5559. Mussulman of Behar .....	187	125	133	510	367	305	102	126
No. 5560. Mussulman of Delhi.....	169	130	136	473	369	317	110	120

If we compare the measurements taken on the skulls with those of M. Duhousset taken on living individuals, we see that the relations of I to II, of I to III, and of II to III, for Guebers, Hindus, and Afghans, give us the following results :—

Nations.	A.		B.		C.	
	I. : II.		I. : III.		II. : III.	
	Skulls.	Heads.	Skulls.	Heads.	Skulls.	Heads.
Guebers .....	1·43	1·42	1·14	1·90	1·41	1·34
Hindus .....	1·24	1·34	1·24	1·96	0·99	1·46
Afghans .....	1·27	1·31	1·25	1·73	0·98	1·40

We see that the numbers of the series, A, are nearly the same for skulls as for heads ; their difference increases in B, and is still greater in C. The reason of this is evident. The height of the head is taken from the aperture of the ear and that of the skull from the centre of the *foramen magnum*, but this last is situated by all men a little below the auditory conduct. Thus the height of the skull would be always a little larger than that of the head, and wherever this element enters as a divisor, the result for the skull must be less than that for the head. This is, indeed, the case, for all our numbers inscribed in the series B and C, with only one exception for C for the Guebers, and, as I can warrant the exactness of my measurements, I believe that this anomaly can be ascribed to some error in the measurements of Mr. Duhousset. We see, therefore, that for rendering these two measurements strictly comparable, we must have a mean to reduce the heights of the head to that of the skull by adding to the first the elevation of the auditive conduct upon the plane of the *foramen magnum*. It would be very easy if this element was constant ; but, unhappily, it varies very considerably, not only in different races, but also in individuals of the same race ; nevertheless, I still believe that, by making a great number of measurements, we shall come to sensibly constant coefficients in this respect. For ascertaining the variations of this element in different skulls I have taken in the cranio-logical collection of St. Petersburg, the following measurements, by a small apparatus constructed for this purpose, which gives very easily and with a great accuracy the vertical elevation of the aperture of the ear in skulls on the plane of the *foramen magnum*.

Thus we see that these variations are considerable, being generally included in the limits of 26·5 and 5 millimeters, and in the same race they can reach 8 and 10 millimeters.



Nations.	Meas. Elevat.	Mean.	Nations.	Meas. Elevat.	Mean.
Chinese, No. 16 .....	25	...	Javanese, No. 40 .....	17.5	...
"    18 .....	26.5	...	"    41 .....	19.5	17.2
"    19 .....	22	24.5	Tatars of Khiva, No. 1...	22.9	...
Bastard Chinese, No. 21	25.5	...	"    Khokand, 2...	16.8	...
"    22	25.5	...	"    Kazan, 81...	15.5	...
"    23	25.5	...	"    anc. of Kazan, 82...	10.5	...
"    24	25.5	25.5	"    "    83...	20	...
Bengalees, No. 27 .....	15.5	...	"    of Kiazan, 85...	17	17.1
"    28 .....	25.5	...	FinishTatars : Bashkir, 87	14	...
"    29 .....	14.5	...	"    "    88	15.8	...
"    30 .....	17.0	18.1	"    "    89	7.0	...
Ceylonees, 31 .....	20.8	...	"    "    90	12.0	...
"    32 .....	15.0	17.9	"    Ichowash, 85	14.5	...
Malays of Sumatra, 33 ...	13	...	"    Teheremiss of Kusan, 84	20.1	...
"    34 ...	5(sic)	9.0	"    Mestsheriak, 86	11.8	13.6
Javanese, No. 37 .....	17	...	Guebers, of Yezd .....	17.5	...
"    38 .....	17.8	...	"    "    .....	10	...
"    39 .....	14.0	...	"    of Kirnan .....	10	12.5

But be that as it may, returning to our subject, we can say positively, that the Iranian head is an oval one with a high fore head, not so perfect as in Greek or Roman skulls, but sufficiently so to admit a possibility of connection between these families of the Arian race, with a top rather flat than arched, except those of the Hindus, with a large and generally flat occipital bone, with a large and oval *foramen magnum* and anterior nasal aperture of European form. The longitudinal and the vertical diameters are nearly as 3 to 2, and the length is to the breadth nearly as 1.3 to 1, what represents a considerable capacity for the development of the brain.

Before passing to other matters, I will mention a very controverted opinion of Herodotus on the Iranian skull. He says (lib. ii, chap. 12), that he tried to throw pebbles on Persian crania he found in the delta of the Nile, and they were so weak that he transpierced them easily, and that the skulls of Egyptians resisted the most severe blows. Professor Westergard, as he informs us in a letter to Rev. Dr. Wilson, published in vol. viii, p. 350, of the *Journal of the Royal Asiatic Society*, has recommenced this experiment at a *Dakhma* of the Guebers of Yezd without success, and he doubts the veracity of the father of history in this respect. To deny the fact after three positive assertions of Herodotus, who had seen it himself near Peluse and at Papremis in lower Egypt, is the same as to reject all his narratives, because he is rarely so affirmative, and it seems to me that we are not in need of it. The fact he mentions proves only, as I believe, that the bones of Persians, formed under the influence of a very dry climate, could not resist so long as those of Egyptians, to the action of the humidity of the Nile delta. Herodotus was born in the year

484 B.C.; the battle he mentions was fought in 525, that is forty-one years before his birth; and so the bones of the Persians killed in that battle, which he examined, were exposed, probably, seventy years to the destructive influence of humidity, which attacked them more than those of the native inhabitants of the land.

Having ascertained—1. That the origin of the Iranians must be searched in the east of the land occupied by them; 2. That a difference exists now as in very remote epochs, in the shape of Eastern and Western Iranians, we can return to the question in what part of the population of the Eastern Iran can we find the primitive national type. I believe it cannot be answered otherwise than by saying, that this original type is better preserved by the Tadjiks than by any other branch of the Iranian family.

If we do not admit that the *παρικοί* of Ptolemy (lib. vi, c. 12) are *παρικοί* or Tadjiks, we must own that the ancient did not know the populations of the Eastern Iran under the name they hold to-day. But it must not be concluded from this, that the name is a modern one. Mr. Stanislas Julien has had the kindness to make for me some researches in the Chinese annals, and they proved not only the correctness of the assertion of Deguignes, that Eastern Persians are mentioned by Chinese authors under the name of *Tiao-tchi*, 122 years B.C., but that it is impossible to confound them with the Taziks or Arabs, because these last are also mentioned afterwards in the annals of the Chinese as *Tashi*. These interesting and valuable researches will be soon published in my work on Persian ethnography, proved also that the Chinese have had constant relations with the Sassanian kings, and possessed very good informations on Eastern Persia. Now, the Tadjiks pretend to be of Arabian extraction; they told it to Mr. Elphinstone at Peshewur; they have said it to me at Bokhara and at Samarcand; and they repeated the same tale to Mr. Wood at Badakhshan; but the inaccuracy of this assertion is easily established and the reason also, for which they wish to spread this notion on their origin. We have seen that the Chinese knew the Eastern Iranians under the name of Tadjiks, long before they have heard of Arabs or *Tachis*. Tadjik means bearers of tiaras or *tadjs*, and designated in the remotest periods of the existence of the Iranians the first fire-worshippers, the *tadj* being an exterior sign of recognition among followers of Zoroaster, as the turban among Mussulmans. Therefore, at first, this name had no ethnographical signification, but afterwards when new populations, with other religions, poured in the Transoxiania, this name remained to the aborigines or to ancient inhabitants, and has been preserved in this quality until now. At the introduction of the faith of Mohammed, this appellation came out of practice as all which reminded of the ancient religion, and that is the reason

of our not finding the Tadjiks mentioned by the early Arabian writers. As to the opinion of the Tadjiks themselves, that Arabia and the country around Bagdad, are the primæval seats of their ancestors (see Wood, p. 296), it is not difficult to explain it. In the last twenty-five years of the first century of the Hidjra, Kudjadj, governor of Mesopotamia, persecuted, with great energy all the descendants of Mohammed established in that province. Many of them fled to Transoxiana, among the most celebrated was the Seyid Sooleiman, son of Abdoollah Kedad, and great-grandson of Zeind Abeddin. He emigrated to Oorgundg, where he married the sister of Seyid Mahmood, surnamed Andjire Fakhnawi, who was buried at the village of Pirmost, near Bokhara. Of this marriage were born twin sons and a daughter; the former were named Kosfan and Hussein. The daughter of Seyid Sooleiman married a Seyid established at Bokhara, and from his son *Emir Koolal* descend the Seyids *Koolali*, very numerous at Bokhara and Yarkend. Hassan had no children, but Hussein had two sons: the eldest, Djelal, is the ancestor of the Seyids of Cabool, and the descendants of the second, *Kemal*, formed the branch of Bokharian Seyids known under the name of Seyids *Khourd*. The third, and last branch of the Seyids of the Transoxiana, that of *Atas*, has also the same origin. All these branches mixed with the Tadjiks, and those of their families which stand in nearer relation with the illustrious emigrants were naturally more respected in a Mussulman country. This state of thing exists to this day, and it is not astonishing, that nearly all Tadjiks claim the honour of an Arabian descent. But this pretension is not so general as it appeared to Mr. Elphinstone, to me, and to Mr. Wood, because we knew from Mr. Masson (*Trav. in Bel. and Afgh.*, t. i, p. 217) that the Tadjiks of Bagor claim a descent from the ancient Keianian heroes.

But if the Tadjiks are the aborigines of East Iran, it is natural to search among them the primitive type of the Iranian family. Generally, they are of a high stature; they have black eyes and black hair. Their heads are long and oval like that of Western Persians; but the frontal bone has more breadth between the semicircular lines, and that gives them faces of broader oval than in Western Persians. The nose, the mouth, and the eyes are very handsome, but the nose is very rarely bent, its general form is straight, much more prominent and long than in Mongolians, but not so much so as in Southern and Western Persians. Frequently the mouth is large, and so are the feet and ears. The abundance of their hair is the same as in Western Iranians, and not only are their beards thick, but frequently their breasts and their arms are covered with hair. The skeleton of the Tadjik is much more massive than that of the Western Persian, and this gives to the

Eastern Iranian more heavy forms, and the fine and easy shapes so common in Western Persia are not frequent among Tadjiks. Their skin is as white and delicate as that of Western Persians, and is just as capable of being sunburnt as the skin of inhabitants of Shiraz or Ispahan, who reside a long time in hot climates. Generally Tadjiks are strong, and can work long without weariness, but they are not so good walkers as Persians.

Of all the tribes of Iranian origin which I have had occasion to examine, the inhabitants of Herat, and especially the Djemshidies; with the Guebers of Kirman and Yezd come nearest to the Tadjik type. But the former have generally larger mouths, and the nose is wider at its base. Guebers, very similar indeed to the Tadjiks, have only this difference, that aquiline noses are not uncommon among them.

As soon as we go from this centre of populations which have preserved the primitive type of their race, the forms improve in spite of the size. In the Hindus, the Afghans (not the nomade ones), the South Persians, and the inhabitants of Western Persia, the size of 1 m. 40 c. to 1 m. 50 c. is much more common than that of 1 m. 70 c. and 1 m. 60 c. found by Mr. Wood in Wakhanians. Upon 14,870 individuals, inhabitants of all parts of Persia, who came in 1857 at the Consulate General's of Russia in Tabreez to reclaim passes, more than two-thirds were entered into the registers as having black eyes and a mean size, that is, from 1 m. 30 c. to 1 m. 50 c. The skull loses its largeness in the frontal bone, and the forehead grows higher; the oval of the face is more elongated; the cut of the eye is more wide and more perfect; the eyelids longer; the ear smaller, as also the mouth and the foot. To-day, as in the times of Herodotus, the hair is very abundant; it is generally black and their transversal cut is oval. The albinos are uncommon in Persia, as well as in Afghanistan. I have seen only two or three during my travels of fifteen years, and Mr. Masson, who resided for years in Afghanistan, speaks only of one woman who was shown to him as a rarity, and as a *Feringhee* woman.

The limits of this communication do not permit me to analyse minutely the variations of the primitive type in different branches of the Iranian family, and I will conclude this paper by examining whether the opinion spread by the travellers of the seventeenth century, that the Persian blood was improved only by an infusion with that of Georgians and Circassians, be well founded or not.

Chardin has especially contributed to establish this notion; but, I must confess, that in this he did not show the penetration and the sagacity which guide him generally. If he had only attentively examined the sculptures of Persepolis, he could have seen

that in the earliest times of Persian history the beautiful Persian type of his days was not uncommon, and in this Dr. Prichard is perfectly right. In the long existence of the Iranians, the Georgian and Circassian influences are quite insignificant. We have no means of inquiring into the ethnographical influences on the Persian population before and under the Achemenians; but we know by Appianus of Alexandria, that under the Arsacides, the kings and their courtiers filled their harems with Grecian women. The Arsacians themselves, being of a Turanian origin, must necessarily have introduced their national element into the population of Western Persia. This state of things lasted from 250 years B.C. to the year 226 A.D., that is, during 476 years. Under the Sassanians the Persian populations could only be renewed by exclusively national elements during the 425 years of the existence of this dynasty. The domination of Arabs helped afresh the crossing of Persians with Semites during 400 years. Under the Seldjookians during 156 years, and under the Kharezmehahs, the Mongolian Khans, Tamerlane and his descendants, for a period of more than 500 years, the Persians were constantly mingled with Turanian elements. Under the Seferians, the crossing with Armenians, Georgians, and Circassians prevailed upon all others during 230 years, and it is only in the present century that Persia is afresh reduced to its own national elements to continue its population.

Thus we can rectify the statement of Chardin and of his followers, and we must say, that the Persian blood was improved by crossing during more than 2000 years with various populations, but especially with Semites and Turanians.

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